AbbeyRoad | Modern Drummer
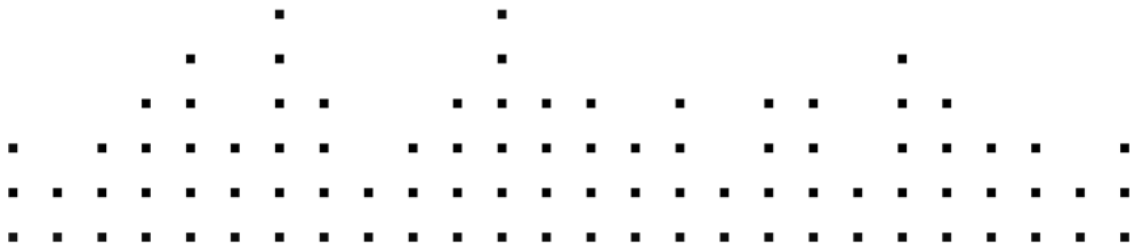
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N I NATIVE INSTRUMENTS

Table of Contents

1   Introduction

ABBEY ROAD MODERN DRUMMER is an acoustic drum library that gives you premium drum kits, a top of the line world famous studio sound, full mixing control with high quality effects, and a huge selection of MIDI grooves covering a variety of popular music genres. It gives you everything you need to create the perfect drum tracks for all kinds of productions.

Two **modern classic kits** were chosen for the ABBEY ROAD MODERN DRUMMER project. Just about every articulation was played on the various drums and cymbals and recorded with up to 25 velocity layers and up to six variations per same-velocity hit. Each kit has up to 18 microphones that can be mixed separately, including many direct mics, a mono and stereo overhead set of mics, and mono and stereo room mics to capture the ambient sound of the various recording spaces in the studio.

The drums were recorded at Abbey Road Studios, the world's first dedicated recording studios. They opened on November 12 1931. The building is an iconic symbol of the international music industry. The studios have been at the heart of the UK music industry for more than 75 years and have been the location of countless landmark recordings and have pioneered new recording techniques and technology. Today, Abbey Road Studios is one of the most technically advanced recording, mixing and post-production complexes in the world.

For many years, Abbey Road benefited from the talents of EMI's research and development division, which custom-built mixing consoles and outboard gear to meet the demands and ambitions of the studio engineers and the artists they worked with. Most of this equipment was only available to EMI studios and was never sold commercially. This equipment, combined with the expertise of our engineers and the unique acoustic properties of the studios, enabled what has come to be known as the "Abbey Road Sound". This sound can be heard on some of the most popular recordings of all time.

Abbey Road and Native Instruments joined forces in 2009 to create outstanding musical instruments based on Abbey Road's legendary equipment, engineering expertise and studio acoustics. Combined with the development and design expertise of Native Instruments, musicians can experience a new level of versatility and musicality.

Document Conventions

This document uses particular formatting to point out special facts and to warn you of potential issues. The icons introducing the following notes let you see what kind of information can be expected:

> ⚠ Whenever this exclamation mark icon appears, you should read the corresponding note carefully and follow the instructions and hints given there if applicable.

> 💡 This light bulb icon indicates that a note contains useful extra information. This information may often help you to solve a task more efficiently, but does not necessarily apply to the setup or operating system you are using; however, it's always worth a look.

Furthermore, the following formatting is used:

- Text appearing in (drop-down) menus (such as *Open…*, *Save as…* etc.) and paths to locations on your hard drive or other storage devices is printed in *italics*.

- Text appearing elsewhere on the screen (labels of buttons, controls, text next to checkboxes etc.) is printed in light blue. Whenever you see this formatting applied, you will find the same text appearing on the screen.

- Important names and concepts are printed in **bold**.

- References to keys on your computer's keyboard you'll find put in square brackets (e.g., "Press [Shift] + [Return]").

► Single instructions are introduced by this play button type arrow.

→ Results of actions are introduced by this smaller arrow.

About KONTAKT / KONTAKT PLAYER

ABBEY ROAD MODERN DRUMMER is a KONTAKT Instrument; you will, therefore, have to have KONTAKT or the free KONTAKT PLAYER installed on your computer in order to use this instrument. Refer to the KONTAKT / KONTAKT PLAYER documentation to learn how to load and configure KONTAKT Instruments.

2 About Abbey Road Modern Drummer

In this chapter, you will find out about Studio Three and Studio Two, the team involved, the drum kits used, and the equipment employed to record ABBEY ROAD MODERN DRUMMER.

2.1 The Studios

2.1.1 Studio Three

Studio Three

Studio Three underwent a major re-development in 1988 overseen by legendary studio designer Sam Toyoshima. Before its modernization, the studio had a small control room and larger recording area. The re-development gutted the original studio and started from scratch to include a large control room, medium sized main studio area (by Abbey Road standards), vocal and guitar cab isolation booths and a rather interesting room with mirrored walls and ceiling.

In 2001 a 96 channel Solid State Logic 9000 J console was installed and is still at the heart of Studio Three today. Artists who have used Studio Three include: Radiohead, The Manic Street Preachers, The Foo Fighters, Gomez and Kanye West.

Studio Statistics

- Height: 23ft 5in / 7.15m

- Width: 25ft / 7.62m

- Length: 22ft / 6.71m

- Floor area: 506 sq ft / 47 sq m

- Studio Reverberation Time: 0.7 - 1.0 sec (variable)

- Mirror Room Reverberation Time: 0.9 sec

Studio Two

2.1.2   Studio Two

Studio Two, arguably the most famous studio in the world, has a unique design, acoustic, and an unparalleled history of recording. The thick solid wood floor, irregularly laid painted bricks, hanging quilts, bass traps and false dropped ceiling make Studio Two sound like no other. The studio is so good at handling any style of music, from rock and roll sessions through to mid sized orchestras, that the room has remained unchanged since the early 1960s. Artists who have recorded in Studio Two include: Kate Bush, The Beatles, Nick Cave and the Bad Seeds, Cliff Richard and The Shadows, David Gilmour, Dido, Green Day, Groove Armada, Idlewild, Muse, Oasis, Underworld, U2, Radiohead, Kanye West and a wealth of film scores.

Studio Statistics

- Height: 24ft/7.31m
- Width: 38ft 3in/11.65m
- Length: 60ft 2in/18.35m
- Floor area: 2131sq ft/198sq m
- Reverberation Time: 1.2 sec

2.2   The Team

The Team in the Studio Three Live Room

ABBEY ROAD MODERN DRUMMER was recorded by Mirek Stiles and executively produced by Abbey Road's Director of Engineering, Peter Cobbin. Drumming duties were performed by Jerry Brown.

Peter Cobbin is Abbey Road's Director of Engineering and is one of the world's top recording engineers. He has been responsible for the remixing of The Beatles Yellow Submarine, Anthology and the John Lennon back catalogue. Other artists Peter has recorded/mixed include Air, Keane, U2, Panic at the Disco, Amy Winehouse and Kanye West. Peter also works with many of the film industry's celebrated directors and composers and has produced film scores such as Lord of the Rings Trilogy, Shrek the Third, Harry Potter (Order of Phoenix and Half-blood Prince), American Gangster, Hell Boy 2 and Terminator Salvation. A keen user of vintage equipment, Peter is responsible for introducing some of Abbey Road's best loved equipment to the audio products community in the form of Abbey Road Plug-ins.

Mirek joined Abbey Road Studios in 1997 and has worked as an engineer on a multitude of pop/rock sessions as well as many different film scores. Projects include: Fiona Apple, Jon Brion, The Beatles: Yellow Submarine Song Track, The Beatles Anthology 5.1 Remix, The Beatles Love, Nick Cave and the Bad Seeds, Mick Jagger, John Lennon back catalogue remix albums (x5), Muse, Paul McCartney, Dave Stewart, Kanye West and The Lord of the Rings trilogy.

Drumming duties were performed by Jerry Brown, one of the most in-demand session musicians in London. Jerry has worked with the likes of Tina Turner, Dave Stewart, Courtney Pine, Ms Dynamite, Will Young and Girls Aloud to name but a few.

2.3   The Kits

Two **modern classic kits** were chosen for the ABBEY ROAD MODERN DRUMMER project:

- The kit recorded in Studio Three was a **Pearl Reference** from the mid 00s. Pearl have been manufacturing drums in Japan since 1950 and since the advent of rock & roll music Pearl's popularity increased world wide by the early 60s. The Reference series was a result of two and a half years of research to determine the optimum thickness, optimum wood composition, and optimum bearing edge for each drum in a drum kit. The Reference series debuted in 2005 and is still the highest quality non-custom made drums in Pearl's current range. The Pearl Kit sizes are: 24" kick, 8", 10" & 12" rack toms and 16" floor tom.

- The kit recorded in Studio Two was a **Drum Workshop Collector's Series** from the mid 90s. Since their first serious catalogue and appearance at a major international trade show back in January 1990, DW have become known for their exceptionally high standards and innovative direction in the art of making drums. The Collector's Series is the company's flagship line of custom made American drums. The DW kit sizes are: 22" kick, 12" & 13" rack toms and 16" & 18" floor toms.

Snare drums used on this project include:

- Sonar Artist Bronze 14 x 6.5
- Ayotte Custom Maple 14 x 5
- DW Collector's Stainless Steel 14 x 5.5
- Pearl Sensitone Elite Brass 14 x 5

- DW Edge 13 x 5.5
- Pearl Sensitone Custom Alloy Steel 12 x 5

The snare drums recorded in Studio Three feature additional samples of a technique we called 'splash on snare'. This involves placing a splash cymbal on the snare batter head. If you strike the exposed skin you get an incredibly dead processed sound. Alternative strikes were placed on the splash cymbal itself, which gives a trashy sound somewhat reminiscent of processed hand claps.

"Splash On Snare" Technique

A set of three Sabian Choppers were recorded in both Studio Two and Studio Three. These effect cymbals give off a wonderfully trashy sound that might sound a little harsh on their own, but sing out in the context of a beat using them as an alternative to the ride or hi-hat.

Whilst in Studio Two we also found time to sample a Zildjian Spiral Trash. This effect cymbal has unique overtones and wave-like timbre.

Sabian Choppers (left) and Zildjian Spiral Trash (right)

2.4   The Recording Equipment

Neumann U47

The idea behind ABBEY ROAD MODERN DRUMMER was to use the best of old and new. Abbey Road has an impressive collection of microphones and outboard equipment spanning from over the history of recording. Classic modern microphones are mixed with vintage rarities. Super clean microphone preamps are complimented with colorful retro valve preamps. Contemporary microphone techniques are placed alongside trends from yesteryear.

SSL 9k mixing desk

ABBEY ROAD MODERN DRUMMER could be considered to be the ultimate recording set up for the modern drum production. The below recorded channels will enable you to sculpt your dream drum sound.

2.5   Microphones & Preamps

2.5.1   Pearl Reference, Studio Three

Microphones and Preamps used for recording the Pearl kit:

- **Stereo Overhead**: Neumann KM 184 with SSL 9k Preamp – The KM 184 microphones are the successors of the well proven KM 84, which has been used since the mid 60s world-wide with great success. It is a compact miniature condenser microphone with a cardioid polar pattern. The SSL 9k preamp found on the 9k desk has a very clean, punchy and smooth sound that is perfect for pop recordings.

- **Kick Out**: Microphone 1: Neumann U47 fet with SSL9k Preamp – Although in no way limited to kick drum applications, this microphone is still one of the first choices for top engineers around the world for a deep & punchy bass drum sound. Microphone 2: Yamaha

NS10 with SSL9k Preamp – The Yamaha NS10 is in fact a monitor loud speaker introduced in 1978 for domestic use. It quickly found its way into studios as a 'real world' reference monitor. It's not in production anymore but can still be found in most professional recording studios around the world. Another popular use for the NS10 was to take the white bass cone out of the monitor enclosure and reverse the phase of the wiring. This would turn a loudspeaker into a microphone. Once dangled in front of a kick drum or bass cab the large surface area of the makeshift diaphragm would create larger than life sub bass. This technique has become so popular that Yamaha now make a dedicated product for this application.

▪ **Kick In**: AKG D 112 with SSL 9k Preamp – The D 112 is one of the most recognized modern kick drum microphones in the world. It is a cardioid dynamic microphone capable of handling levels up to 160 dB SPL.

▪ **Hihat**: Shure SM58 with SSL 9k Preamp –The SM58 is the 'secret weapon' of some engineers. It's probably the world's most famous microphone but often gets overlooked in the studio environment.

▪ **Snare Top**: Microphone 1: Shure SM57 with SSL 9k Preamp – Introduced in 1967 the SM57 is still probably one of the world's biggest selling microphones. The SM57 is a dynamic cardioid microphone. This mic was used to provide the 'body' of the snare drum. Microphone 2: KM84 with SSL 9k Preamp – The KM84 microphone is a small capsule cardioid condenser introduced in the mid 60s. It was one of the world's first microphones made with 48v phantom power technology. This mic was 'strapped' to the top of the SM57 and was used to provide a nice top end snap to compliment the SM57.

▪ **Snare Bottom**: Shure SM57 with SSL 9k Preamp.

▪ **Toms**: All rack and floor toms for this project were mic'ed from the top and from below. The signals were then mixed together to create a single tom channel. The idea behind this is the top microphone provides the attack and the bottom microphone provides the resonance of the shell. This technique can make a massive difference to the overall tom tone of a recording.

▪ **Rack Toms**: Top Microphone: Sennheiser MD 421 with SSL 9k Preamp – Originally introduced in 1960, this cardioid dynamic microphone has become a bit of a classic. The MD 421 II used on our sessions was and still is a popular choice for drums. Bottom Microphone: Shure SM57 with SSL 9k Preamp.

- **Floor Tom**: Top Microphone: AKG D 112 with SSL 9k Preamp. Bottom Microphone: Neumann U 47 fet with SSL 9k Preamp.

- **Mono Overhead**: This could be considered the 'retro' channel in the recording set up. This channel was also run via a Fairchild 660 valve limiter. AKG D 19 with REDD.47 Preamp and Fairchild 660 Limiter – The EMI REDD.47 preamp was found on the REDD.51 mixing console and was used at Abbey Road from 1963 through to the early 70s. The dynamic AKG D 19 cardioid microphone was first brought into the Abbey Road Studios collection in 1963.The microphones are still in use today. At the time they were very cheap and considered at bit of a workhorse, being used on many applications from drums to piano and almost everything between. First put into service at Abbey Road Studios in 1964, The Fairchild 660 classic limiter has become one of the most sought after pieces of vintage recording equipment in history.

- **Stereo Room**: Brauner VM1 with SSL 9k Preamp – The concept of this model was to build the perfect tube microphone. This German made microphone is considered a modern classic by most professional engineers. Its sensitivity and low noise floor make it perfect for capturing the tone of a room.

- **Mono Room**: This channel is a single microphone placed about five meters from the kick drum and placed very low to the floor. This microphone captures the reflections from the wood floor. The channel was also run through an Empirical Labs EL8 Distressor compressor/limiter. Neumann U 47 with Summit Audio TPA 200B Preamp and EL8 Distressor Compressor/Limiter – The legendary Abbey Road U47 has been in use at the studios since 1951. The U47 is probably the most sought after and recognizable microphone in the world. This valve condenser microphone has both omni and cardioid polar patterns. The TPA-200B is a dual channel preamplifier marrying a classic tube and transformer front end design with a more modern solid state output stage. This pre-amp has been part of the Abbey Road arsenal since the early 90s. The EL8 is a modern day classic that has found its way into many top recording studios.

2.5.2   Drum Workshop Collector's, Studio Two

Microphones and Preamps used for recording the Drum Workshop kit:

- **Stereo Overhead**: Neumann KM 184 with EMI TG12428 Preamp – The EMI TG12428 is the first transistor microphone pre-amp found on the TG MKI mixing console. The TG MKI was introduced to Abbey Road in the late 60s.

- **Kick Out**: Microphone 1: Neumann U47 fet with Neve 1081 Preamp – Although designed back in 1972 and released as part of the 8048 console in 1973, the 1081 has been the microphone pre amp of choice for many engineers over the last 3 decades. Its remarkable sensitivity and fast, musical response to transients makes it a particular favorite for drums and percussion. Microphone 2: Yamaha NS10 with Neve 1081 Preamp.

- **Kick In**: AKG D 112 with Neve 1081 Preamp.

- **Hihat**: Shure SM58 with Germanium Preamp – The Germanium transistor was at the heart of classic models from companies like Neve, EMI, Telefunken and Fairchild. This pre-amp has a fantastic vintage sound.

- **Snare Top**: Microphone 1: Shure SM57 with Neve 1081 Preamp. Microphone 2: KM84 with Neve 1081 Preamp.

- **Snare Bottom**: Shure SM57 with Neve 1081 Preamp.

- **Toms**: All rack and floor toms for this project were mic'ed from the top and from below. The signals were then mixed together to create a single tom channel. The idea behind this is the top microphone provides the attack and the bottom microphone provides the resonance of the shell. This technique can make a massive difference to the overall tom tone of a recording.

- **Rack Toms**: Top Microphone: Sennheiser MD 421 with Neve Montserrat Preamp – The Air Montserrat mixing console was a slight departure from the 8048 console. Designed by Rupert Neve with input from Geoff Emerick and Sir George Martin, the Montserrat console preamps features different transformers and coupled with integrated circuits to allow a larger frequency response. Bottom Microphone: Shure SM57 with Neve Montserrat Preamp.

- **Floor Tom**: Top Microphone: AKG D 112 with Neve Montserrat Preamp. Bottom Microphone: Neumann U 47 fet with Neve Montserrat Preamp.

- **Mono Overhead**: This could be considered the 'retro' channel in the recording set up. This channel was also run via a Fairchild 660 valve limiter. AKG D 19 with REDD.47 Preamp and Fairchild 660 Limiter.

- **Room**: Brauner VM1 with Neve 1081 Preamp.

- **Mono Room**: This channel is a single microphone placed about 5 meters from the kick drum and placed very low to the floor. This microphone captures the reflections from the wood floor. The channel was also run through an Empirical Labs EL8 Distressor compressor/limiter. Neumann U 47 with Summit Audio TPA 200B Preamp and EL8 Distressor Compressor/Limiter.

3   Quickstart

In this chapter, you will find a quick guide to navigating the controls of MODERN DRUMMER, as well as step by step guides to certain functions.

3.1   Basic Navigation

The interface has four main pages of control. You can navigate among these pages by clicking on the tabs at the bottom of the instrument's Performance View. The different pages and their uses are as follows:

- **Grooves page**: On this page is a browser of many genre-separated MIDI grooves and fills with variations that can be dragged to your host for immediate song creation.

- **Options page**: This page has options for technical kit settings such as kit mapping and velocity options, as well as randomization parameters.

- **Kit page**: You can select each drum on this page to adjust the overhead and room mixes, tuning, and volume envelopes for those drums. You can also select which snare you want to use, as well as load and unload the separate kit pieces.

- **Mixer page**: This page has all of the standard controls for an audio mixer, including levels, panning, solo, mute, send levels and channel routing. This is also where all effect settings and effect routing options are edited.
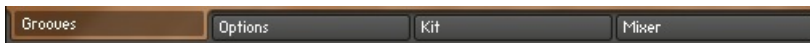
The four navigation tabs at the bottom of the Performance View

3.2   Editing the Drums

3.2.1   Fine-Controlling Individual Drums and Articulations

To change the individual kit piece's sound settings and articulations:

1.   Click on the Kit tab.

2. To edit the settings for a particular drum or cymbal, just click on its picture. Percussion is selected from a sub-menu of icons next to the drum kit image.

3. To change the overhead and room mix amounts for each piece, adjust the corresponding OH MIX and ROOM MIX knobs.

4. To alter the tuning, adjust the TUNE knob.

5. To change the volume envelope of the selected piece, you can adjust the ATTACK, HOLD and DECAY with the respective knobs.

A typical drum's control panel

3.2.2   Changing the Snare

Each kit has alternate snares to choose from. To change the snare:

1. Click on the Kit tab.

2. Click on the snare drum image.

3. Click on the A or B or C button located underneath the snare drum image to switch between the snares.

→   The snare image will change to indicate the newly selected snare.

Click the buttons to switch between the snares of a kit.

3.2.3   Creating a Mix

To create a mix of the kit, click on the Mixer tab. This will give you a virtual mixing console with many of the same controls you would find on a real mixing desk. Here you can control the volume, pan, mute, solo, and routing of the various tracks. You can also add many customizable effects to all channels.

A typical channel on the Mixer page

You can also adjust the levels of the in, out, mics on the kick, the top and bottom mic on the snare, and the amount of snare mic bleed when the kick and toms play.

Additional controls for the Kick and Snare channels

3.2.4   Adding and Removing Drums

If you will not be using a particular drum, cymbal or percussion instrument, you can remove it from the kit, thus freeing up more computer memory. To do this:

1.   Click on the Kit tab.
2.   Select the instrument that you want to remove.
3.   Click on the small memory chip icon above the instrument name at the bottom left of the page.
4.   A drop-down menu will appear, giving you the option to add or remove the instrument from the kit with *Load Instrument* and *Unload Instrument* options. When an instrument is unloaded, a darkened version of it will replace the original image.

> ⚠️   If you unload an instrument, you can always load it back again using the same method.
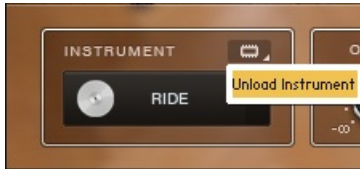
Unloading an instrument on the Kit page.

3.2.5   Preset Handling

►   To step through the presets, simply click on the right and left arrows.

►   To load a preset, simply select the preset from the drop-down menu.

Saving User Presets

You can save presets for the settings of the whole mixer on the Mixer page, as well as kit mapping layouts on the Options page. Each of these preset menus contains a selection of factory presets and allows you to save your own custom presets. Factory presets cannot be overwritten (indicated by the darkened Ø icon), but they can be adjusted and saved as a new user preset.

To save a user preset:

1. Adjust the settings you want to save and recall for your preset.
2. Click in the text area on the preset drop-down menu.
3. Type in the name for the new preset and click on the Save icon above the drop-down menu.

→ The new preset will now appear at the bottom of the drop-down menu and is ready to be used when opening the kit again.

> ⚠ If you save a user preset without changing the name, it will overwrite the current user pre-set.

Removing User Presets

1. To remove a user preset:
2. Select the preset in the drop-down menu.
3. Click on the ∅ icon above the drop-down menu.

→ The user preset will be deleted and not be available when opening the kit again.

4   The Performance View

This chapter describes the Performance View interface of MODERN DRUMMER. Learn how to use the functions and controls of the four pages: Kit, Mixer, Grooves and Options.

4.1   Kit Page

The Kit page has a view of the drum kit where you can select each drum and adjust:

- the tuning
- the volume envelope
- the overhead microphone mix
- the room microphone mix

You can also choose which snare you want to use, as well as load or unload the selected drum.

Kit page Performance View of the Sparkle Kit

To select a drum or cymbal for editing, click on it with the mouse. To select a percussion instrument, click on its icon at the right of the drum kit image. For details on editing the instrument settings on the Kit page, see section ↑3.2, Editing the Drums.

💡 Clicking on an instrument will also play the sound of that instrument, giving you a quick preview of the sound. For instructions on how to disable (or enable) sound playback on mouse click, see section ↑4.4.3, KIT VIEW Settings.

After selecting an instrument, its name and controls will appear in the panel at the bottom of the page. Editing the sound of a selected instrument will edit all articulations of that instrument.

Each kit has two snare drums to choose from. You can select the snare drum you want to use by clicking on the A and B buttons below the snare image. Switching between the snares will unload the current snare from memory and load the other one, and will change the image of the snare drum.

When the SELECT BY MIDI icon at the upper right of the Kit page is activated, the drums will be selected depending on the notes played with your MIDI input device.

> ⚠ This function is automatically turned off during host playback, or while the file player of the KONTAKT stand-alone application is running (e.g. playing back a MIDI groove).

> 💡 You can also select the kit pieces by using the INSTRUMENT drop-down menu at the left of the panel at the bottom.

You can remove the selected instrument from the kit (and thus unload it from memory) by clicking on the small memory chip icon to the right of the INSTRUMENT header, as described in section ↑3.2.4, Adding and Removing Drums. Removing unused kit pieces is useful for freeing up computer memory. You can always load the kit pieces back at any time. When a kit piece is unloaded, its image turns dark.

The rest of the panel contains the controls for the Overhead (OH) and Room microphone mixes, the drum Tuning control, and the volume envelope of the drum with controls for the Attack, Hold, and Decay (AHD envelope). For more information on these controls, see sections ↑4.1.1, OH and ROOM MIX Knobs, ↑4.1.2, TUNE Knob, and ↑4.1.3, ATTACK, HOLD and DECAY Knobs.

4.1.1   OH and ROOM MIX Knobs

OH MIX and ROOM MIX knobs

The OH MIX and ROOM MIX knobs adjust the volume levels of the Overhead microphone(s) and the Room microphone(s) of the selected drum, cymbal, or percussion instrument. This allows you to create your own custom mix of those microphones for each individual drum, which is not possible in a traditional studio recording.

> ⚠ Please note that this is a separate control from the overall level of the OH and Room mics. These levels can be adjusted on the Mixer page.

4.1.2 TUNE Knob

TUNE knob

The TUNE knob changes the pitch of the selected kit piece. The pitch changes for all microphones and all articulations of that piece. The range of the TUNE knob is limited to values that are relatively realistic.

4.1.3 ATTACK, HOLD and DECAY Knobs

ATTACK, HOLD and DECAY knobs

The ATTACK, HOLD and DECAY knobs are controls for a typical AHD volume envelope for each selected drum.

- Increasing the ATTACK value adds more of a fade-in to the beginning of the sound.
- The HOLD knob adjusts how long the sound stays at maximum volume.
- The DECAY knob adjusts how quickly the sound fades out after the HOLD time has passed.

For the most natural drum sound, the default setting is the best (ATTACK is off, and HOLD is at maximum). Adjusting these controls is only necessary if you want to shape the sound in an "unnatural" way.

4.2   Mixer Page

The Mixer page has the same microphone level and panning controls as a real mixing board, as well as a large selection of effects and routing controls. You can save and load all mixer settings by using the MIXER panel at the upper left of the page. This panel appears on every page of MODERN DRUMMER, in order to select different mixer page presets while using other parts of the interface. As each kit has a very different sound, these mixer presets can only be used for the kit that they are saved with.

Mixer page Performance View

4.2.1 Common Mixer Controls

- The channel faders on the Mixer page control the **volume level of the various microphones**. The faders in the CLOSE MICS area control the volume of the individual direct micro- phones, and the KIT MICS faders control the volume of the overhead and room micro- phones.

> ⚠ The levels of each instrument within the overhead and room microphones can be adjusted separately, but this is done on the Kit page (see section ↑4.1, Kit Page above).

- Each close mic and mono kit mic has a PAN knob to change the left and right location of that mic in the stereo field.

- Each stereo kit mic has a WIDTH knob, ranging from MONO to STEREO. STEREO is the standard setting, where the left and right channels are independent on the left and right sides. As the knob is turned towards MONO, the left and right channels are combined until they become a single central sound source when the knob is turned all the way to the left.

- The S and M buttons allow you to solo (S) and mute (M) the individual channels. When a track has the Solo button pressed, all other channels are silent and only the soloed channel can be heard. Putting additional channels into solo mode will add those channels into the mix, but still keep all other channels silent. When the mute button is pressed, the selected track can no longer be heard. Mute has a higher "ranking" than solo, so if a track has both buttons pressed, the track will be muted.

- The SEND knob at the top of each channel controls the amount of reverb effect to be included in the mix for that channel. The global reverb level is adjusted with the reverb fader in the BUSES area.

4.2.2 CLOSE MICS Area

The CLOSE MICS area takes up the left portion of the Mixer page. As the name suggests, this area contains the **channel controls for the close microphones**. The close microphones (also known as "direct" mics) are placed very close to the drums. There are close microphones for the kick, snare, hi-hat, toms, and some percussion.

4.2.3 KIT MICS/BUSES Area

The right portion of the Mixer page displays the controls for either the kit microphones or the busses:

The **Kit Microphones view** includes controls for the overhead and room microphones. These microphones are placed in such a way to record the sound of the entire kit, either with a stereo pair or with a single mono microphone.

The controls in the **Buses view** are used to adjust the levels of the master output, master panning and reverb return level.

► To switch between the Kit Microphones and Buses view, click on the BUSES or KIT MICS button, respectively, both of which are located at the top-right of the Mixer page.

► You can also switch the left and right position of the master out with the L↔R button on the MASTER channel. All channels are labeled at the bottom, and the labels are high- lighted when editing the channels.

4.2.4   Effects

Several new high quality effects are included with MODERN DRUMMER, specifically tailored for acoustic drum production. These effects are **Convolution Reverb**, **Solid G-EQ**, **Solid Bus Comp**, **Tape Saturation**, and the **Transient Master**. Each of these effects can be turned on or off for any of the channels by clicking on the LED next to each effect name at the bottom of the page.

Convolution Reverb
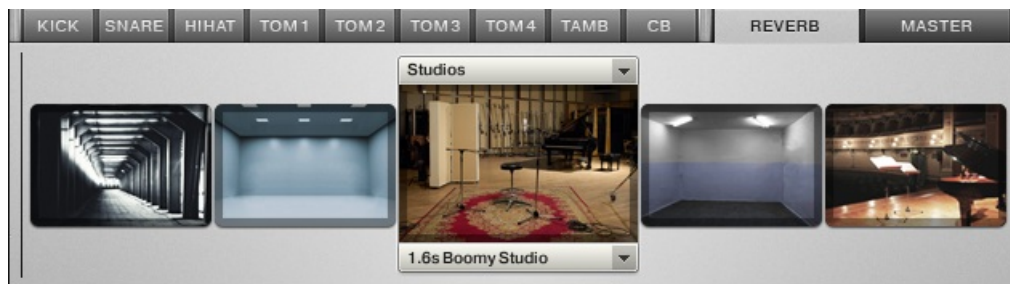
Convolution Reverb effect

The Convolution Reverb includes many impulse samples of some of the best acoustic spaces for acoustic drum production.

► To **select an acoustic space**, click on the BUSES tab and then click on the Reverb chan- nel. The various spaces will then appear at the bottom of the screen.

► To **shift the selection over to reveal more room types**, click on the room images to the right and left of the selected image.

► To **select the room type**, click on the drop-down menu above the selected room image. The drop-down menu below the room image allows you to select a specific room preset within that room type.

► To **adjust the overall level of the reverb**, move the fader on the Reverb channel. The amount of reverb in each channel is adjusted with the SEND knobs at the top of each microphone channel.

Solid G-EQ

Solid G-EQ effect

The SOLID G-EQ is a uniquely musical EQ. Up to four frequency ranges can be adjusted with high precision.

- The HZ/KHZ knobs set the center frequency that is being adjusted with the EQ.

- For the two mid frequency ranges, there are Q knobs to adjust the width of the bell curve for the adjusted frequency range.

- The DB knobs adjust the gain boost or gain reduction of the selected frequencies.

- The low and the high frequencies can switch between bell curve and shelf modes by clicking on the BELL button.

- The OUTPUT knob on the right side adjusts the overall output level.

Solid Bus Comp

Solid B-Compression effect

Also available as a fully-fledged product in its own right, this virtual reproduction of a legendary compressor adds presence and drive to your drums without blurring the detail.

- The ATTACK knob adjusts the amount of time in milliseconds that it takes for the compressor to reach the ratio after the input signal exceeds the threshold level.

- The RELEASE knob adjusts the amount of time in milliseconds that the compressor will take to stop affecting the sound after the input signal falls below the threshold.

- The THRESHOLD knob adjusts the level in dB that the input signal must exceed before the compressor starts affecting the sound.

- The RATIO knob controls the amount of compression expressed as a ratio of "input level" to "output level change". The higher the RATIO knob is set, the more the output level will be reduced as the sound goes beyond the threshold.

- The MIX knob allows you to add the dry signal to the mix as well, for a parallel compression sound.

- The MAKEUP knob allows you to increase the overall output level of the compressed sound.

- The OUTPUT knob on the right side adjusts the overall output level.

Tape Saturator

Tape Saturator effect

The Tape Saturator adds the simulated warmth of sound that comes from an analog tape machine.

- The WARMTH knob manipulates the frequencies of the audio to give a "warming" tone to the sound.
- The GAIN knob adjusts the amount that the input signal is boosted with the saturated sound.
- The HF knob takes away the highest frequencies in a similar way that analog tape rolls off those high frequencies.
- The OUTPUT knob on the right side adjusts the overall output level.

Transient Master

Transient Master effect

The Transient Master can subtly or drastically change the sound of the drums, depending on how you want to use it.

- The INPUT knob adjusts the level of the input signal going into the effect.

- The ATTACK knob adjusts the level of the attack of the signal.

- The SUSTAIN knob adjusts how long the sound will ring out, which can effectively sound like changing the dampening or the size of the various drums, or even changing the size of the room that the drums are in.

- The OUTPUT knob on the right side adjusts the overall output level.

4.2.5 Channel Settings

Each channel has its own settings for effect routing and channel output routing, and each mic channel can also be unloaded from memory if not in use.

Channel Settings view for the Kick Drum

- In the FX ROUTING area, there are four different effect routing presets to choose from. These change the order of which effect comes before the other, depending on your preference in a mix (for example, some engineers prefer to use EQ before compression, while others prefer to use it after compression). The signal chain of the effects goes from left to right according to the image, and you can step through the different order presets using the right and left arrows.

- The CHANNEL area gives an OUTPUT drop-down menu to select which output that channel will be routed to. Please note that the channel outputs must first be setup in KONTAKT before being able to route them here. To unload a channel that is currently not in use from your computer's memory, select it from the drop-down menu (represented by a memory chip icon) in the top-right corner of the CHANNEL area. You can always load that channel back at any time.

Additional Kick and Snare Controls

The Kick and Snare close microphones have additional controls to adjust multiple direct microphone levels:

- For the Kick close mic, there is an additional area on the left where you can adjust the separate levels of the Direct In mic (placed inside the kick drum pointing towards the front head) and the Direct Out mic (placed a short distance outside of the kick drum).

- For the Snare close mic, there is an additional area on the left where you can adjust the separate levels of the Direct Top mic (placed over the snare drum pointing down), the Direct Bottom mic (placed under the snare drum pointing up), and the Snare Bleed. The Snare Bleed fader adjusts the amount of the "buzzing" sound that the bottom of a snare produces when resonated by the Kick and Toms.

4.3   Grooves Page

The Grooves page is a browser with a huge library of organized MIDI grooves that can be used to quickly create drum parts for a song or production. You can edit several parameters to change the beats, and all grooves can be dragged into your host.

The GROOVE panel at the top right of the page allows you to play the groove with the play button, and select through the variations of that groove with the right and left arrow buttons. This panel is available on every page of MODERN DRUMMER so you can play the grooves when using any of the other pages.

► To use a groove in your host, click in the area of the groove name and drag the groove to your track in the host. A MIDI file of the groove will be created in your track.

Grooves page Performance View

The GROOVE BROWSER has a total of three columns:

- The leftmost column shows a list of Genre folders, each with its own set of customized Grooves, Fills and Variations.

- The middle column shows the list of Grooves and Fills available for that Genre. The standard time signature is 4/4, unless otherwise shown in the name of the Groove or Fill. And the end of each Groove, there is a suggested BPM (beats per minute) tempo to use, but the grooves can be used at any tempo.

- The rightmost column is a list of all Variations for the selected Groove or Fill. To select a Variation, double click on the variation name. After selecting one variation, you can use the up and down arrows on your computer keyboard to select among the variations, or the right and left arrows in the GROOVE panel.

Available Grooves

The 5 **Genres included with MODERN DRUMMER** are Alternative Rock, Indie Rock, Soul/RnD, Indie, Metal, Country, and Blues.

A Groove for a particular Genre is a typical beat that would be used for that genre. Similarly, a Fill for a particular Genre is a drum fill that would be used in music for that genre. A Variation has the same general sound and feel of the main Groove or Fill, but has some small changes, ranging from different hi-hat rates to additions of ghost notes to changes of drums used, etc. The different Variations have key words in their names to identify the changes made in a particular variation, which are listed below:

- *4th*, *8th*, *16th*, etc.: This represents the note division on which the tempo of the groove is played or felt. This is usually based on the instrument that is keeping the time, such as the hi-hat or ride cymbal.

- *Hat*/*Ride*/*Other*: This is the instrument that is keeping the time of the groove, typically a hi-hat or ride cymbal.

- *Closed*/*Open*/*Both*: This term is used when a hi-hat is keeping the time, and describes whether the hi-hat is always closed, always open, or uses both closed and open hits. This term will not be used if a ride cymbal or other instrument is keeping the time.

- "Extra": Sometimes an extra word is added at the end to classify the sound of the groove:

  ◦ *Ghost*: This is used when there are additional ghost notes added to the groove, such as snare or kick ghost hits.

  ◦ *Side*: This term is used if a snare sidestick is used instead of a center hit.

  ◦ *Toms*: When additional toms are included in the groove, this term will appear.

  ◦ *Perc*: If additional percussion sounds are used, which includes extra percussion such as cowbells or hand claps, as well as "rim only" articulations, then this term will be used.

- *Multi*: If more than one of the above sounds or techniques is used, then the term at the end will be Multi to represent multiple types.

Groove Controls

- The TIGHTNESS knob changes the amount of "groove" in the beat. The center value is the original sounding played beat. When turned all the way to the right, the beat is completely quantized and "machine-like". As the knob is turned to the left, the beat gets more and more loose until it sounds very "sloppy" when turned all the way to the left. Depending on the type of music, all knob positions can be useful for different styles.

- The SWING knob adjusts the amount of swing in the beat. Swing allows for rhythmic shifting of a groove where the first note in a series plays longer than the one that follows. When the knob is all the way to the right, the swing is the most severe. When all the way to the left, a "negative" swing is applied, where the first note in the series is actually shorter than the one that follows. Different time signatures affect the swing in different ways, so it is often best just to try the SWING knob to see how it sounds with the selected groove.

- The GRID selector allows you to select different quantization timings for the TIGHTNESS and SWING knobs. For example, selecting *1/8* will push the grooves towards or away from the 8th notes of the beat when using the TIGHTNESS knob.

- The VELOCITY knob changes the range of the velocities in the grooves. At the center position, the groove plays with the same velocities that were recorded with it. As the knob is turned to the right, the range is "compressed" to the high range so that all velocity values increase until they are all at maximum when the knob is all the way to the right. Similarly, when the knob is turned to the left the velocities are "compressed" to the low range until all velocities are the lowest when turning the knob all the way to the left.

- The TEMPO selection buttons allow you to immediately change the tempo of the groove or fill to be half the speed or double the speed of the originals. This can be useful when a song is recorded at a high BPM tempo, but the feel of the song is actually half of that speed (or vice versa).

4.4   Options Page

The Options page is where additional "technical" parameters of a kit are adjusted, such as the MIDI note mapping and velocity ranges. There is also a RANDOMIZE section where various sound parameters have random values applied.

Options page Performance View

4.4.1   VELOCITY Settings

The VELOCITY area at the top allows you to fine-tune the way MODERN DRUMMER responds to MIDI input:

- In the CURVE section you can select a curve for incoming MIDI note velocities. The default is a linear curve, but many MIDI input devices have different levels of sensitivity, making a convex or concave curve more appropriate. There is also an option to select a constant "fixed" velocity (represented by a horizontal line).

- Utilizing the RANGE controls, you can change the lowest and highest velocity values. This is useful for preventing the quietest and/or the loudest sounds from playing, and instead be limited to the specified minimum and maximum. Different MIDI input devices, such as MIDI keyboards and electronic drum kits, will also need their own velocity setting adjustments to match your playing style.

4.4.2   MIDI Mapping

The MIDI MAPPING area contains all of the controls for changing the mapping layout of the kits. Each articulation can be assigned to one or more MIDI notes, allowing for your own customized mapping. This is very useful for adjusting the mapping to the way that suits you best when playing the drums with a MIDI keyboard, or for adjusting the mapping to a custom electronic drum setup.

To assign the MIDI notes manually by entering or selecting the note in the NOTE selector:

1. Select the INSTRUMENT and the ARTICULATION in the drop-down menus.
2. Click on the checkbox next to the APPLY CHANGES? label.

→   The changes will be applied.

> You can also click the SELECT BY MIDI icon to change to the NOTE value by playing the MIDI note, and then following the procedure above to assign the note.

All custom MIDI mappings can be saved and loaded from the mapping preset menu.

Mapping Presets

MODERN DRUMMER also comes with a selection of mapping presets that are set up to work with popular software and electronic drum setups. These include General MIDI, V-Drums (two options), DrumIt Five, EZDrummer, Superior Drummer, BFD, iMap, and Addictive Drums.

There is also a special LEGACY mapping that follows the mapping of the ABBEY ROAD MOR-ERN DRUMS. Previous owners who update to the MODERN DRUMMER can use that mapping to open up older projects in their DAW. These mappings can be selected from the PRESET drop-down menu in the MIDI MAPPING area. If you want to make changes to these mappings, you can always do so and save the mapping preset under a different name.

> ⚠ Please keep in mind that every e-drum setup is different, and almost every drum kit has some particularities to it. Therefore the mapping presets will not fully match your e-drum setup without any adjustments. These mapping presets have been included to provide you with the best possible starting point. You can make additional changes to these mappings and save a new preset to fit your e-drum needs.

4.4.3 KIT VIEW Settings

The KIT VIEW area holds the properties of the Kit page:

- TRIGGER ON MOUSE CLICK: This option defines if the sound of an instrument is played back when the instrument's image on the Kit page is clicked on with the mouse.

- SHOW TRIGGER STATES: This option defines whether the drum kit view on the Kit page displays a real-time animation when instruments are triggered (played) during song or MIDI groove playback.

> ⚠ It is recommended to deactivate the SHOW TRIGGER STATES option when computing power is scarce, e.g. when working on projects with high track counts. Switching off the user interface animations may considerably reduce the CPU load.

4.4.4 RANDOMIZE Settings

The controls in the RANDOMIZE area add custom levels of humanization and variation in the sound output. The higher the value of a knob, the higher the range of randomization for the relevant control. The randomized parameters are:

- VOLUME: The volume level of the played drum increases or decreases by a random amount with each hit.

- VELOCITY: The velocity of the played drum will increase or decrease slightly, which can trigger different samples above or below the one at the original velocity.

- TIME: This will add a slight random amount of delay to each hit.

- PITCH: The pitch of the played drum will be higher or lower by a slight amount with each hit.

- TONE: This will slightly change the frequency curve of each hit. Different drums have different frequency ranges, specific to the sound of each drum.

> A good way to add even more subtle variation to the sounds in the kit is to change the randomization parameters just slightly, especially the PITCH, TONE and VOLUME knobs. For all knobs, turning them a maximum of a quarter of the way up will allow the effect to remain subtle. Turning these knobs up to a high value can be used for a more experimental sound.

5   Kit Selection

There are a total of four main instrument NKIs included with ABBEY ROAD MODERN DRUMMER:

- **AR Modern Sparkle Kit Full**: This is the full version of the Sparkle Kit with all samples and microphones included.

- **AR Modern White Kit Full**: This is the full version of the White Kit with all samples and microphones included.

- **AR Modern Sparkle Kit Lite**: This is a version of the Sparkle Kit that includes all velocity layers, but has no sound variations for same velocity hits. This kit has a smaller memory footprint as well as a faster loading time than the full kit.

- **AR Modern White Kit Lite**: This is a version of the White Kit that includes all velocity layers, but has no sound variations for same velocity hits. This kit has a smaller memory footprint as well as a faster loading time than the full kit.

6   Drum Articulations

Here is a comprehensive list of all drums and articulations included with each kit.

6.1   Sparkle Kit

Drum	Articulation	Default Key / MIDI Number
Kick Drum	Dampened	C1 / 36
	Half Open	A#4 / 82
	Open	C3 / 60
Snare Drum 1, 2 & 3	Center Left Hand	A4 / 81
	Center Right Hand	B4 / 83
	Center Right/Left Alternating *	D1 / 38
	Halfway Left Hand	C5 / 84
	Halfway Right Hand	D5 / 86
	Halfway Right/Left Alternating *	E1 / 40
	Rimshot	D#1 / 39
	Sidestick	C#1 / 37
	Flam	D3 / 62
	Roll	D#3 / 63
	Wires Off	E3 / 64
	Rim Only	C#3 / 61
	Splash On	G6 / 103
	Splash Off	F6 / 101
	Splash Rim	F#6 / 102

Drum	Articulation	Default Key / MIDI Number
Hihat	Closed Tight Tip Right Hand	D#5 / 87
	Closed Tight Tip Left Hand	C#5 / 85
	Closed Tight Tip Right/Left Alternating *	F#3 / 66
	Closed Tip Right Hand	G#5 / 92
	Closed Tip Left Hand	F#5 / 90
	Closed Tip Right/Left Alternating*	F#1 / 42
	Closed Shank Right Hand	C#6 / 97
	Closed Shank Left Hand	A#5 / 94
	Closed Shank Right/Left Alternating *	G#3 / 68
	Closed Pedal	G#1 / 44
	Open Pedal	A#3 / 70
	Open Quarter	E4 / 76
	Open Half	F4 / 77
	Open Three-Quarters	F#4 / 78
	Open Loose	G4 / 79
	Open Full	G#4 / 80
	Open Controller**	A#1 / 46
Tom 1 (Rack Tom High)	Center Right Hand	E6 / 100
	Center Left Hand	D6 7 98
	Center Right/Left Alternating *	B1 / 47
	Rimshot	B3 / 71
	Rim Only	D#4 / 75
Tom 2 (Rack Tom Mid)	Center Right Hand	C6 / 96
	Center Left Hand	B5 / 95
	Center Right/Left Alternating *	A1 / 45
	Rimshot	A3 / 69
	Rim Only	D4 / 74

Drum	Articulation	Default Key / MIDI Number
Tom 3 (Rack Tom Low)	Center Right Hand	A5 / 93
	Center Left Hand	G5 / 91
	Center Right/Left Alternating *	G1 / 43
	Rimshot	G3 / 67
	Rim Only	C#4 / 73
Tom 4 (Floor Tom)	Center Right Hand	F5 / 89
	Center Left Hand	E5 / 88
	Center Right/Left Alternating *	F1 / 41
	Rimshot	F3 / 65
	Rim Only	C4 / 72
Cymbal 1 (High Crash)	Edge	C#2 / 49
	Tip	C2 / 48
	Bell	D2 / 50
	Choke ***	A#-1 / 22
Cymbal 2 (Low Crash)	Edge	G2 / 55
	Tip	F#2 / 54
	Bell	G#2 / 56
	Choke ***	C0 / 24
Cymbal 3 (Ride)	Tip	D#2 / 51
	Bell	F2 / 53
	Edge	E2 / 52
	Choke ***	B-1 / 23
Cymbal 4 (China)	Edge	A2 / 57
	Tip	A#2 / 58
	Choke ***	C#0 / 25

Drum	Articulation	Default Key / MIDI Number
Cymbal 5 (Splash)	Edge	B2 / 59
	Choke ***	D0 / 26
Perc 1 (Stick)	Hit	B0 / 35
Perc 2 (Clap)	Solo	A0 / 33
	Multi	A#0 / 34
Perc 3 (Chopper)	High	E#0 / 29
	Mid	E0 / 28
	Low	D#0 / 27
Perc 4 (Cowbell)	High Open	G-1 / 19
	High Muted	A-1 / 21
	Low Open	E-1 / 16
	Low Muted	F-1 / 17
Perc 5 (Tambourine)	Tap	G0 / 31
	Shake	G#0 / 32

6.2   White Kit

Drum	Articulation	Default Key / MIDI Number
Kick Drum	Dampened	C1 / 36
	Half Open	A#4 / 82
	Open	C3 / 60
Snare Drum 1, 2 & 3	Center Left Hand	A4 / 81
	Center Right Hand	B4 / 83
	Center Right/Left Alternating *	D1 / 38
	Halfway Left Hand	C5 / 84
	Halfway Right Hand	D5 / 86
	Halfway Right/Left Alternating *	E1 / 40
	Rimshot	D#1 / 39
	Sidestick	C#1 / 37
	Flam	D3 / 62
	Roll	D#3 / 63
	Wires Off	E3 / 64
	Rim Only	C#3 / 61

Drum	Articulation	Default Key / MIDI Number
Hihat	Closed Tight Tip Right Hand	D#5 / 87
	Closed Tight Tip Left Hand	C#5 / 85
	Closed Tight Tip Right/Left Alternating *	F#3 / 66
	Closed Tip Right Hand	G#5 / 92
	Closed Tip Left Hand	F#5 / 90
	Closed Tip Right/Left Alternating *	F#1 / 42
	Closed Shank Right Hand	C#6 / 97
	Closed Shank Left Hand	A#5 / 94
	Closed Shank Right/Left Alternating *	G#3 / 68
	Closed Pedal	G#1 / 44
	Open Pedal	A#3 / 70
	Open Quarter	E4 / 76
	Open Half	F4 / 77
	Open Three-Quarters	F#4 / 78
	Open Loose	G4 / 79
	Open Full	G#4 / 80
	Open Controller **	A#1 / 46
Tom 1 (Rack Tom High)	Center Right Hand	E6 / 100
	Center Left Hand	D6 7 98
	Center Right/Left Alternating *	B1 / 47
	Rimshot	B3 / 71
	Rim Only	D#4 / 75
Tom 2 (Rack Tom Low)	Center Right Hand	C6 / 96
	Center Left Hand	B5 / 95
	Center Right/Left Alternating *	A1 / 45
	Rimshot	A3 / 69
	Rim Only	D4 / 74

Drum	Articulation	Default Key / MIDI Number
Tom 3 (Floor Tom High)	Center Right Hand	A5 / 93
	Center Left Hand	G5 / 91
	Center Right/Left Alternating *	G1 / 43
	Rimshot	G3 / 67
	Rim Only	C#4 / 73
Tom 4 (Floor Tom Low)	Center Right Hand	F5 / 89
	Center Left Hand	E5 / 88
	Center Right/Left Alternating *	F1 / 41
	Rimshot	F3 / 65
	Rim Only	C4 / 72
Cymbal 1 (High Crash)	Edge	C#2 / 49
	Tip	C2 / 48
	Bell	D2 / 50
	Choke ***	A#-1 / 22
Cymbal 2 (Low Crash)	Edge	G2 / 55
	Tip	F#2 / 54
	Bell	G#2 / 56
	Choke ***	C0 / 24
Cymbal 3 (Ride)	Tip	D#2 / 51
	Bell	F2 / 53
	Edge	E2 / 52
	Choke ***	B-1 / 23
Cymbal 4 (China)	Edge	A2 / 57
	Tip	A#2 / 58
	Choke ***	C#0 / 25

Drum	Articulation	Default Key / MIDI Number
Cymbal 5 (Splash)	Edge	B2 / 59
	Choke ***	D0 / 26
Perc 1 (Stick)	Hit	B0 / 35
Perc 2 (Clap)	Solo	A0 / 33
	Multi	A#0 / 34
Perc 3 (Cowbell)	High Open	E#0 / 29
	High Muted	F#0 / 30
	Low Open	D#0 / 27
	Low Muted	E0 / 28
Perc 4 (Chopper)	High	A-1 / 21
	Mid	G-1 / 19
	Low	F-1 / 17
Perc 5 (Spiral)	Stick	G0 / 31
	Mallet	G#0 / 32

* There is a separate note assignment that alternates between the left and right hand samples of the center and halfway snare, center tom, and closed hi-hat articulations when playing faster than a certain speed. This adds a realistic sound to faster playing, as a drummer would also switch to using both hands at fast speeds.

** There is a separate note assignment for the open hihat that controls the amount of hihat openness depending on the position of the Modwheel controller (CC1) or a hi-hat foot controller (CC4). At the 0 position of the controller, the open hihat control key plays the fully open hihat. As the controller sends higher values, playing the open hihat control key will trigger hi-hat samples that gradually become more closed.

*** Cymbal choke samples are triggered by specific note assignments which play release samples. When playing a cymbal sound, triggering the choke sample will play the sound of a choked cymbal which relates to the current volume of the played cymbal. If no cymbal sound is currently active, then the cymbal choke notes will do nothing. Choke samples can also be triggered with electronic drum pads which support the choking feature, as well as with keyboard aftertouch.

7   Credits

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Graphic Design: Efflam Lebivic, Gösta Wellmer, Philipp Roller, Cameron Wakal,

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Abbey Road Executive Producer: Peter Cobbin

Abbey Road Engineer and Project Management: Mirek Stiles

Abbey Road Assistant Engineers: Pete Hutchings

Drummer: Jerry Brown

Drum Tech: Simon Jayes

Marketing and GUI Photography: Alexis Chabala

Session Photography: Athena Anastasiou

All Drums Provided by:

London Drum Company: http://www.londondrumcompany.com/

John Henry's: http://www.johnhenrys.com/